July 6, 1945

# Copper Commando - vol. 3, no. 23

Victory Labor-Management Production Committees of Butte, Anaconda and Great Falls

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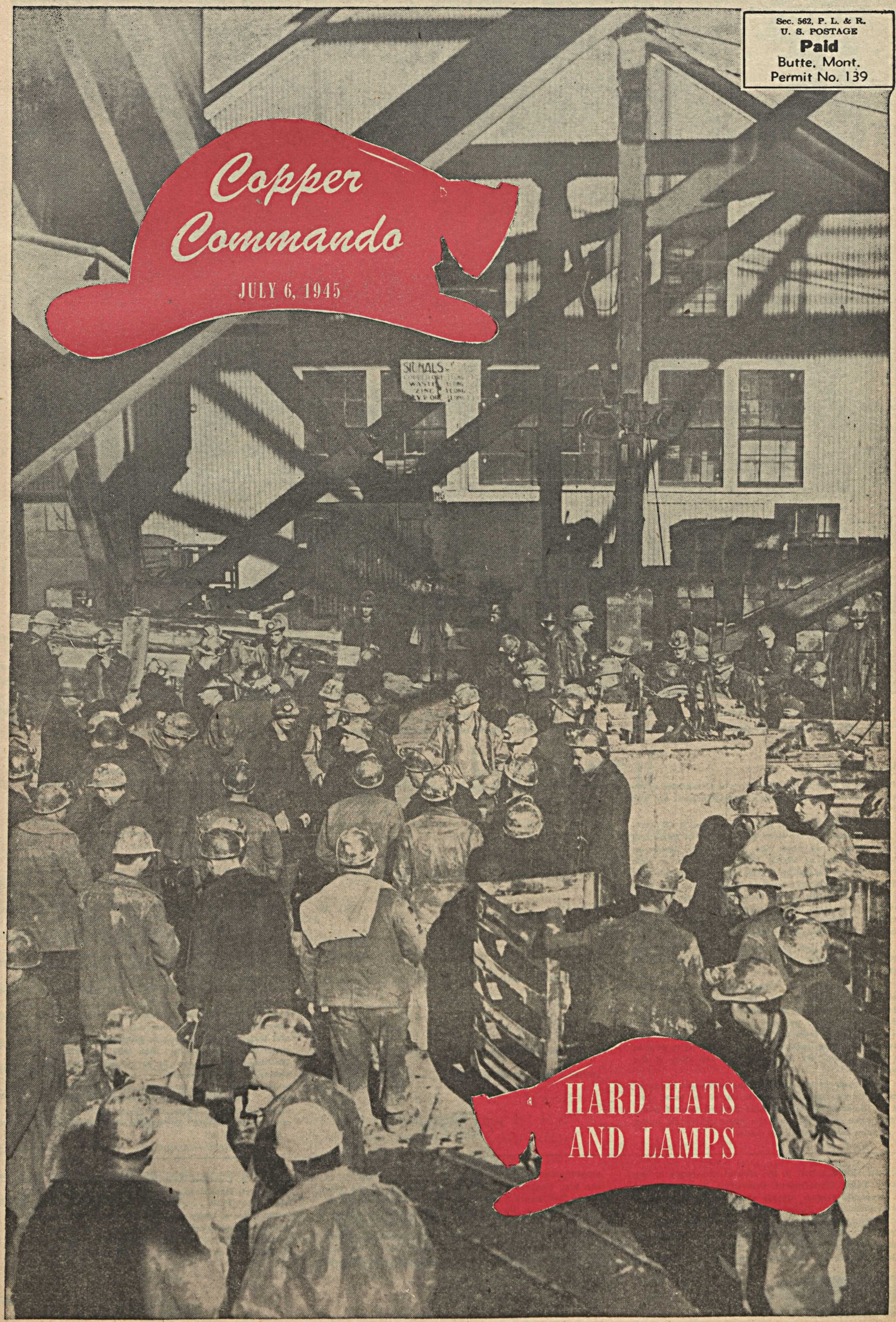
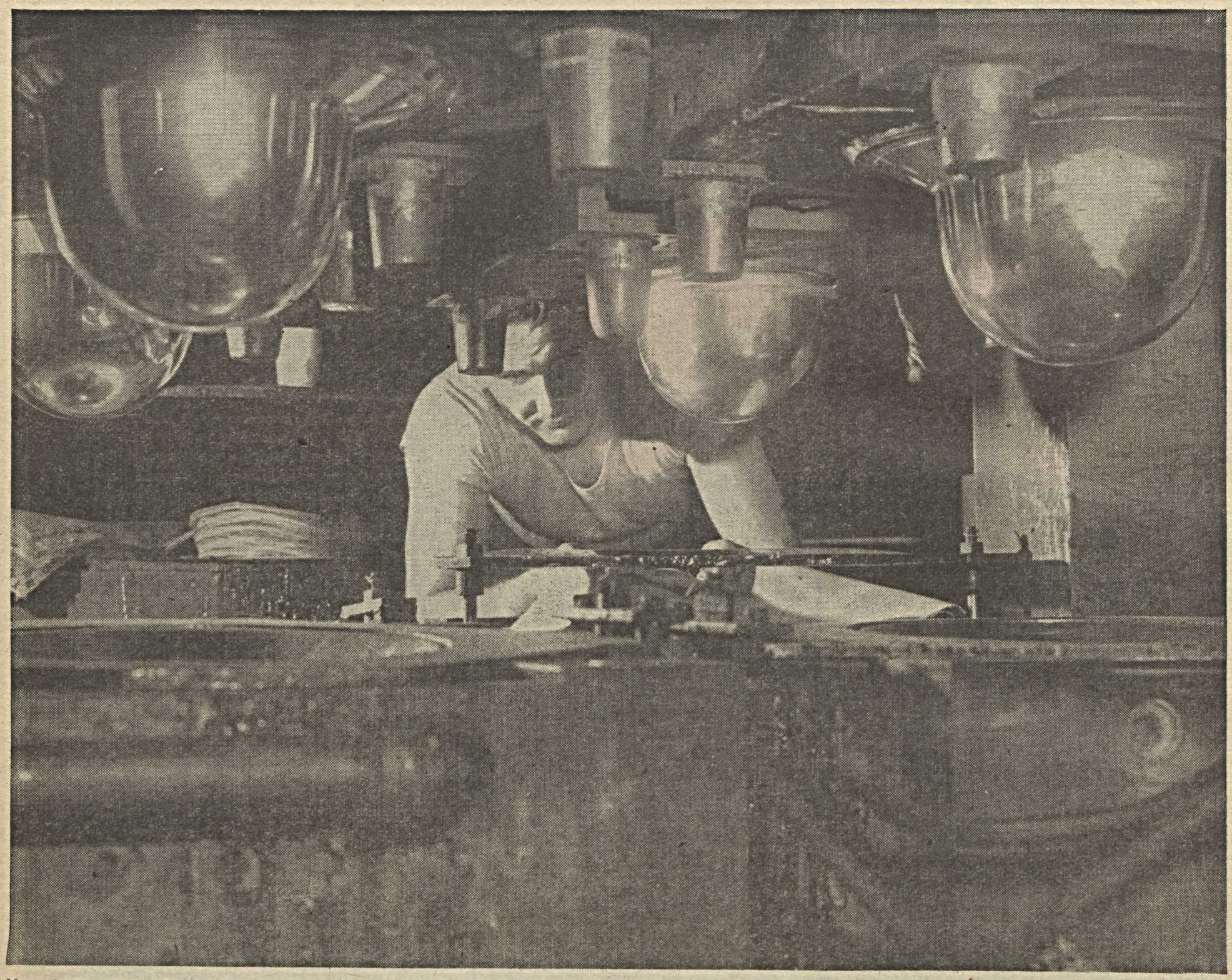
# Copper Commando

JULY 6, 1945




## HARD HATS AND LAMPS



**Here begins the order for hard hats for Butte miners. At this giant high pressure molding machine, four hard hats are made at one time. The operator, Alex Copeland, shown in the rear center, stands next to the mold for the special Butte skull guard, which is known as the type C.**

## Editor's Eyeful

THIS issue of your Labor-Management Committee newspaper is devoted to the miner's protective hard hat and lamp.

We thought you might like to know how it all started: A few weeks ago we were underground in Butte and during dinner (you know the miners have dinner at noon and supper at night) we got to chinning with a few of the boys about hard hats. Being pretty ignorant about the whole thing, we got to fingering our own hard hat and asked a few of the boys what it was made of, where it came from and a lot of other such questions. Everybody seemed to know something about them, but nobody knew everything, including us.

So we got the idea we'd like to find out where these hard hats were made, what they were made of, and all about them.

It resulted in a tour of the Mine Safety Appliances Company in Pittsburgh, Pa. This is where these hard hats are made and this issue tells the story. We got a lucky break, because we were able to follow an actual Butte order right from the beginning to the end. The hats we saw being constructed are in use right now in the Butte mines. We have also done the story of the lamps.

You'll find out later on that the protective headgear used by our fighting men is made out of the same stuff and in the same way. We have devoted several pages of this issue to telling how the liners which fit under the soldiers' steel helmets are made.

## Inside Stuff

WE don't know whether you're interested in the behind-the-scenes account of how an issue of Copper Commando is put together, but we'll take a chance. We know most of our readers barely give a thought to the planning and sweating that go into the making up of an issue—you have to be a newspaper man to understand that.

Here is how this particular issue was put together: When the idea of "covering" the construction of hard hats was agreed upon by our advisory board from labor and management, Bob Newcomb arranged on a return trip from Washington and New York to stop in Pittsburgh. He spent one full day in the Mine Safety plant, was joined that evening by our photographer to whom he blocked out the story and arranged for the pictures. The following day the pair, complete with camera and other photographic equipment, tackled the story. By careful planning they were able to clean it up in one day. Upon his return to Butte, Bob and Marg Sammons laid out the issue with small pictures, called "contact prints." The pictures were approved by our editorial board, the request was then issued to our photographer for larger pictures so that Al Ashton, our engraver, could make engravings. The copy was written and checked locally with our editorial board and other technical men so that no inaccuracies would occur in our copy; Marg Sammons on her way East carried the prints and text, cleared the copy in Pittsburgh so that no misstatements might appear, then took the entire issue to Washingon for approval by Army and Navy of text and pictures. (This is mandatory because your publication must not reveal any facts of a confidential military nature.) After Washington approval, the material was airmailed back to Butte, the plates made, the type set, and the job run off. It required about eight weeks.

Simple, isn't it?

## Contents

VOL. III NO. 23



ALLIED PRINTING TRADES UNION LABEL COUNCIL BUTTE, MONT.

COPPER COMMANDO is the official newspaper of the Victory Labor-Management Production Committees of the Anaconda Copper Mining Company and its Union representatives at Butte, Anaconda, Great Falls and East Helena, Montana. It is issued every two weeks . . . COPPER COMMANDO is headed by a joint committee from Labor and Management, its policies are shaped by both sides and are dictated by neither . . . COPPER COMMANDO was established at the recommendation of the War Department with the concurrence of the War Production Board. Its editors are Bob Newcomb and Marg Sammons; its safety editor is John L. Boardman; its chief photographer is Al Gusdorf; its staff photographer is Les Bishop . . . Its Editorial Board consists of: Denis McCarthy, CIO; John F. Bird, AFL; Ed Renouard, ACM, from Butte; Dan Byrne, CIO; Joe Marick, AFL; C. A. Lemmon, ACM, from Anaconda; Jack Clark, CIO; Herb Donaldson, AFL, and E. S. Bardwell, ACM, from Great Falls . . . COPPER COMMANDO is mailed to the home of every employee of ACM in the four locations—if you are not receiving your copy advise COPPER COMMANDO at 112 Hamilton Street, Butte, or better still, drop in and tell us. This is Vol. 3, No. 23.

Here the plastic treated cloth is being laid on the molds by the operator. When the molds are covered, the operator closes the press and in about eight minutes, these four molds will deliver miners' hat "shells," later to become our underground protective headgear.

# Those Hats Are Hard

**Did you ever stop to consider how a miner's hard hat is made? Have you ever wondered how the cap lamp came to replace earlier types? Your editors got to wondering about these things and thought that all our readers might like to hear and see how these items of equipment are manufactured. Come along with us on this picture-and-text tour of the vast plants in Pittsburgh from which this mining equipment comes. We guarantee you that you will find the trip just as entertaining and exciting as we did.**

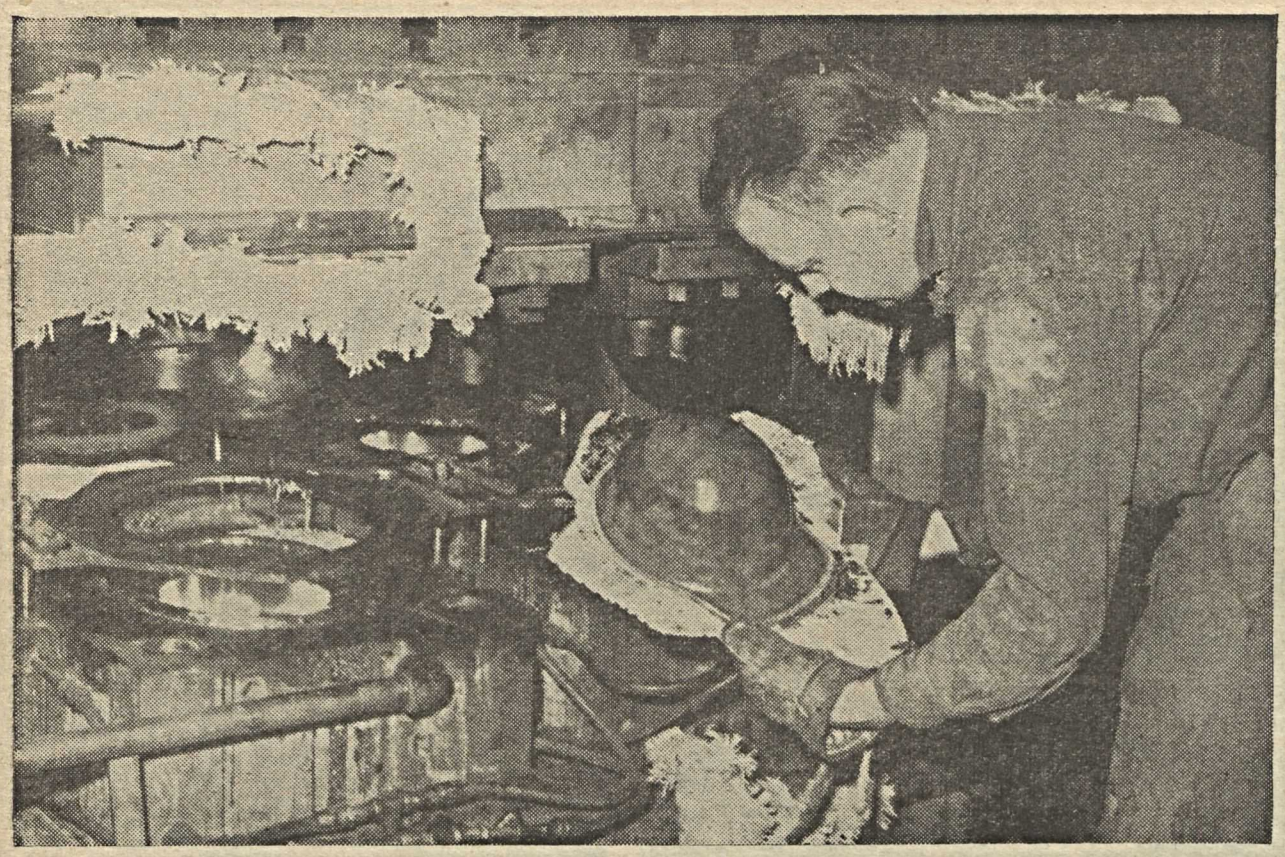
THIS is a picture-story about the hard hats and the lamps used in the mines of Butte. Not all of our readers, of course, are Butte miners. Your Labor - Management Committee publication reaches the smeltermen and craftsmen at Anaconda, at Great Falls and at East Helena. We also reach the phosphate miners at Conda (who wear hard hats too), the loggers working out of Woodworth and the lumbermen at Bonner.

The hard hat or Skullgard (that's the trade name for it) is a miner's institution. The cap lamp represents him also. But we hope, and we trust you do too, that a story of particular interest to the Butte miner will be of interest to our other readers as well.

Today the same general type of hard hat used by the men underground at Butte is being used by our sons and brothers and friends on the vast Pacific fighting front.

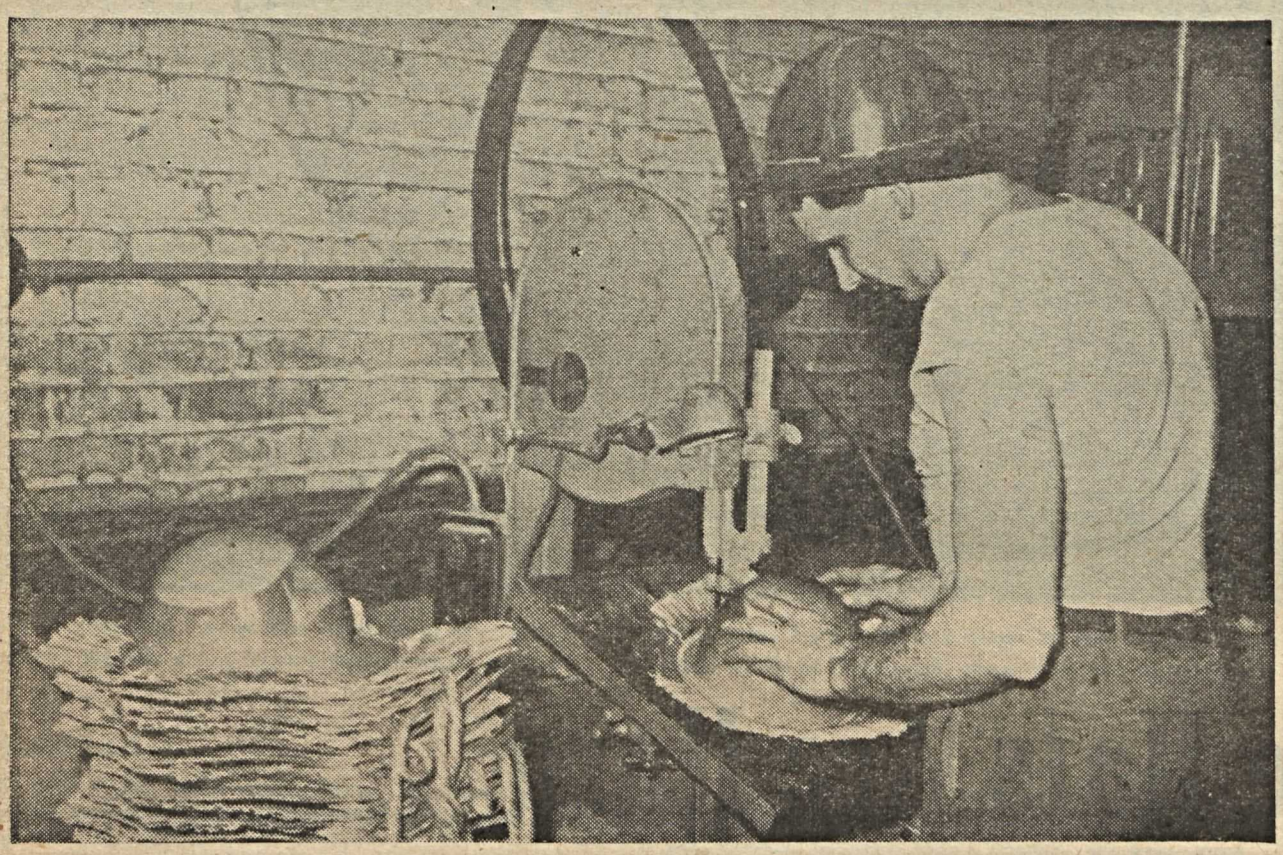
We found the process of manufacturing the hard hat most interesting. As you will see as we go along, we were able to follow an actual purchase order from the Butte mines. We started off with it at the time the order was received and carried it completely through to the point of shipment. The hard hats we picture during the various stages of manufacture are already in use by the boys at the Anselmo, the Mountain Con and other Butte mines. We have a hunch that many of our miner-readers will take a closer look at their headgear and at their lamps the next time they have a free moment.

# HARD HATS
## in the Making



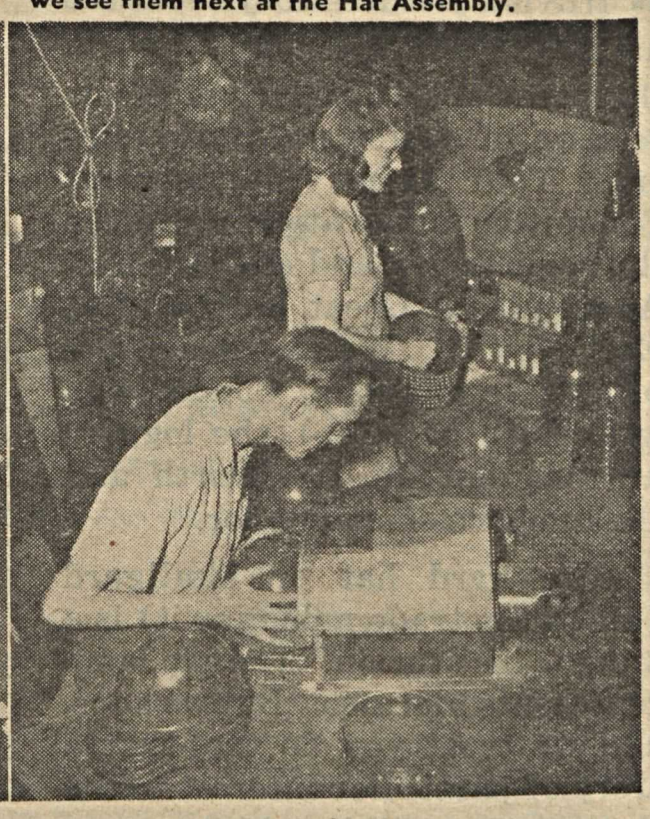
Tom Flynn removes the shell from the mold. Note the excess material which must be trimmed off.

The lighter round crown piece is re-enforced by screen cloth, providing added protection.



At the band saw Alex Copeland trims off the "flash." Note that he wears a hard hat himself. The shells are now buffed and smoothed; we see them next at the Hat Assembly.

Tom Ference, head of the Hat Assembly Department, shows the order from the Purchasing Department at Butte to Copper Commando editor Bob Newcomb (wearing hat). At the right, Roland Rankin and Lillian Hahn are starting off the Butte order. Lillian inserts hat size markers.



YOU'D find it hard to believe that the miner's hard hat (or Skullgard as it is technically known) in its original state is a flat piece of material resembling canvas. If you look at it from a distance, it looks like black sandpaper. When you get close to it and feel it between your fingers, it feels exactly like a stiff piece of canvas.

This material is cut and molded into forms. These hats are made in Pittsburgh in large quantities for metal mines. The Butte hat, with its black flexible brim at the back, was designed especially for the Butte miners after various samples were submitted to Anaconda's Research Department. It is known as the C hat. It consists of three sheets of this material placed one on top of another, a piece of screen cloth at the crown, and a length of hemp rope which is molded right into the hat around the brim to strengthen it.

The material when assembled is laid upon an open mold. The assembled materials are then put under about one hundred fifty tons of pressure at a temperature of three hundred degrees Fahrenheit for about eight minutes.

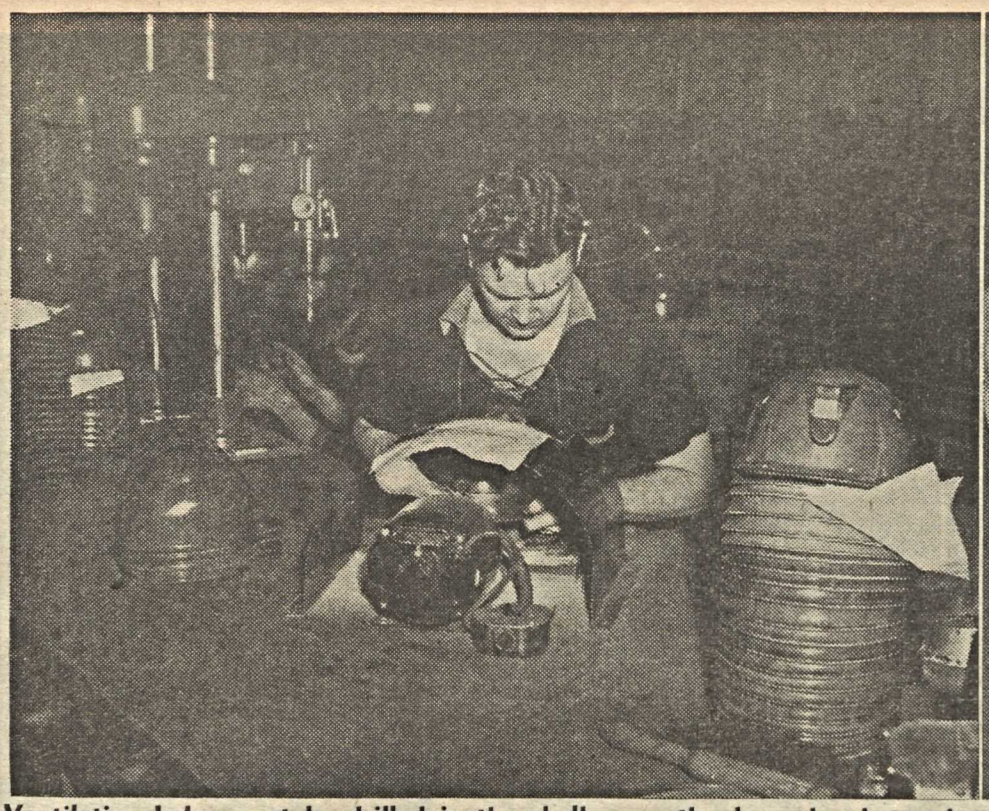
When this interval is up, the "shells" are removed from the press—there is an outer rim of excess material or "flash" which must be trimmed off by hand on a band saw.

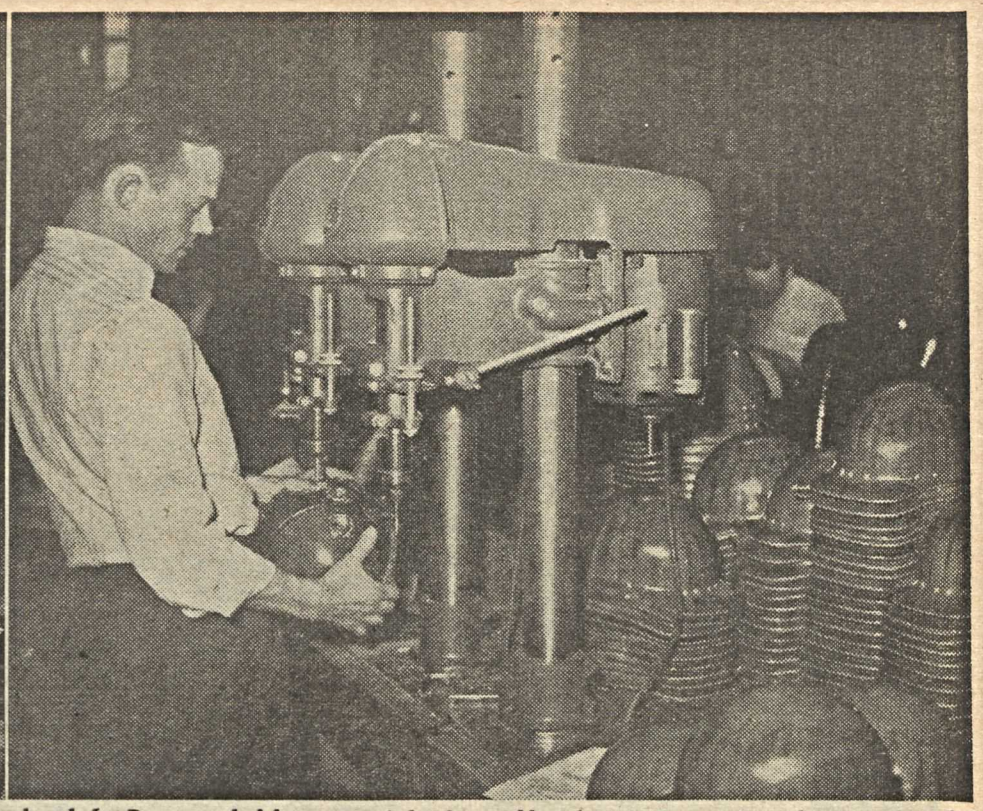
The shells, trimmed and buffed, are then moved across the street to another plant where head size labels are put in, ventilation and other holes drilled, mine lamp brackets attached, lining assemblies laced in, and the final job inspected and passed.

As we have already told you, we were lucky in being able to follow an actual Butte order right through. The order had arrived in Pittsburgh from the Purchasing Department in Butte the same day and called for a quantity of Butte model or C hard hats. We started off from the very moment the order began moving, and you see here hard hats for the Butte miners actually being made.

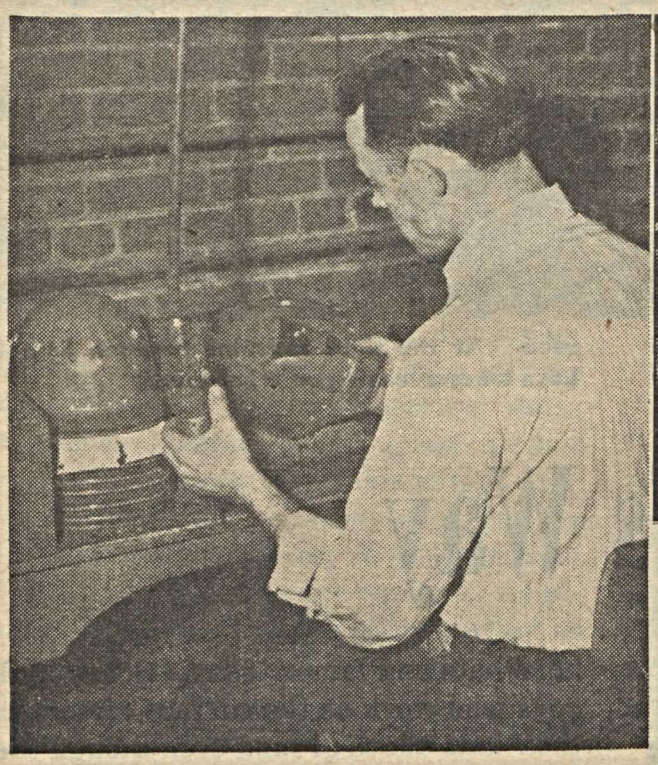
The job is done in two plants: The making of the shells takes place in the main plant in the hat molding department and then it moves across the street for completion of the order to the hat assembly department.

These hard hats can stand tremendous abuse, as most miners know. One of the severe tests to which they are subjected before being shipped out is this: A hard hat is placed in a machine resting upon the hat band, just as it does when a miner puts the hat on his head, then a steel ball weighing eight pounds is dropped five feet right on the crown of the hat. If there is any defect, the hat is discarded.





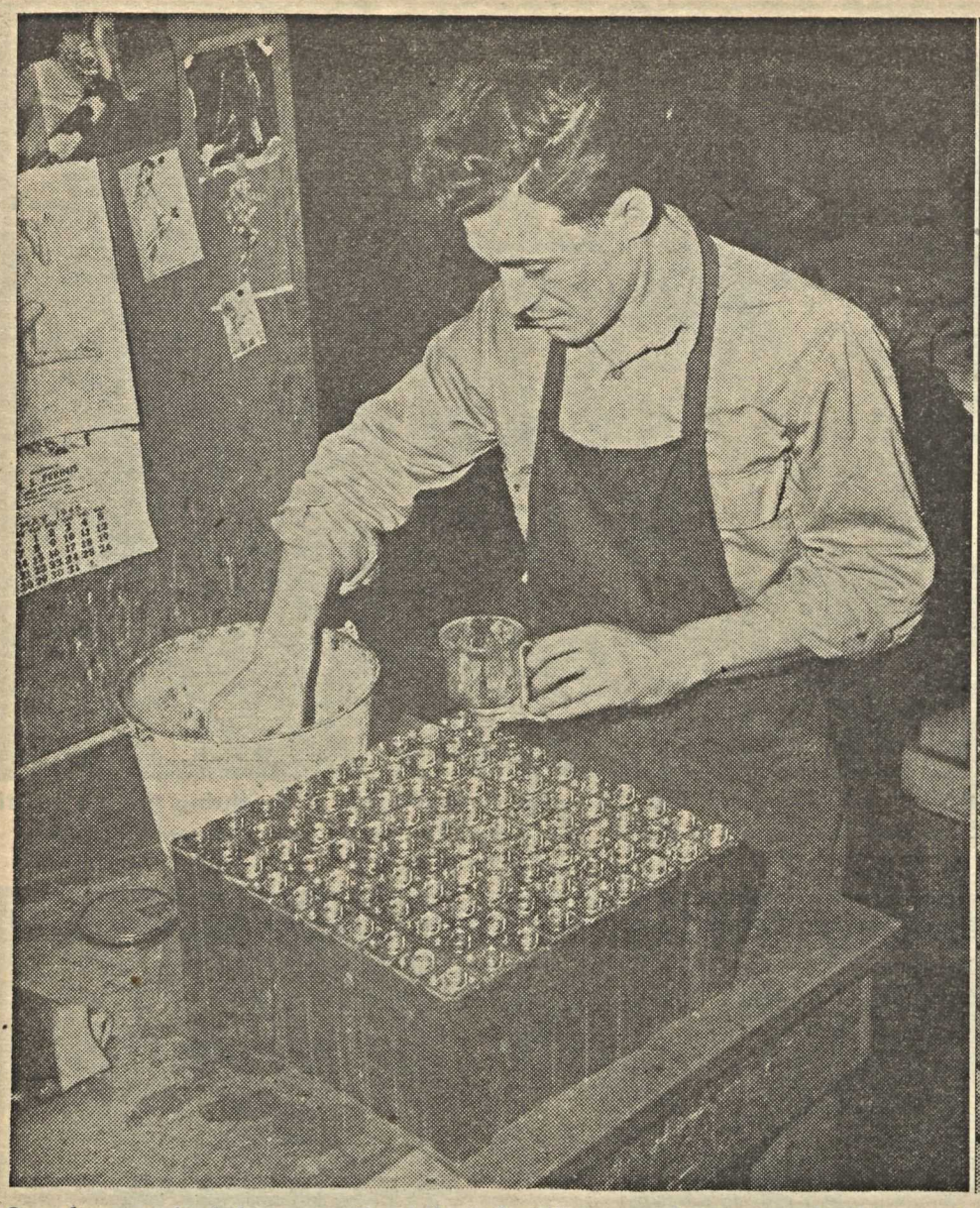
Ventilation holes must be drilled in the shells, as well as holes in the front of the hat to hold the lamp bracket. At the left Raymond McDonough is drilling ventilation holes while at the right Jerry Hutchin is preparing the hat for the lamp bracket, made from the same material.



At the left, Jerry Hutchin attaches the lamp bracket. Above, an order of linings for the Butte mines is being filled by Helen Hotujec. At the right Margaret Moden is assembling the linings and attaching the flexible brim.

# An Order for Butte Goes Through the Plant

Here's the finished job. Inspector Grace Wagner looks over the finished C hat for Butte. The hat now goes to the shipping room and is started on its way to the Butte mines.



Over here at the left we see Frank Ladeda filling Model P Batteries with distilled water. The P battery is the improved model—now in use in Butte—and is superior to the model formerly used. At the right assistant foreman Sam De Luca takes a reading on P batteries.

# To Light the Miner's Way

HARD hats or Skullgards are by no mean the only thing which the Mine Safety Appliances Company of Pittsburgh, Penna., makes for the Butte miner and the smelterman. We have no space in this issue for such interesting matters as the manufacture of breathing apparatus and first-aid equipment, and other types of safety equipment widely used in our mines and our reduction works. It may be that, if you like this issue well enough, we may some day return to tell you how this other equipment is made.

But now we turn our attention to the lamps for the miners. These lamps, as we all know, are affixed to the front of the hard hats and connected by a cable to a battery.

The first lamps in Butte were installed experimentally at the Mountain Con in August, 1932—they were made up especially for the Butte mines at the suggestion of Jim Carrigan who was working at that time as general superintendent under W. B. (Bill) Daly, the general manager of mines. There were only twenty cap lamps installed at that time—the company and the miners themselves wanted to find out how they would work out.

The Butte miner had long been accustomed to carbide hand lamps which were often awkward to carry and greatly increased the hazard of fire. According to several of the old-time miners we have talked to, there was some resistance to the cap lamps because the hats seemed heavy on the head. But gradually they got used to them and, as one old-time miner told us, "We wouldn't be without hard hats and lamps today. Some of the boys who work on the surface often wear their hats above ground even though they have nothing but the blue sky above them."

**The lamp and battery worn by the Butte miner was invented by Thomas A. Edison, probably one of the greatest inventors of all time. In Pittsburgh today, these lamps and batteries are assembled for use by miners throughout the world, and this equipment is also serviced here. The keen-eyed Butte miner, visiting this department, would be interested to see that the copper he mines in Montana returns to him in terms of copper used in his lamp. Let's visit this interesting department and follow the job along together.**

Cap lamps of the Model K type were ordered for all the mines in 1934, and hard hats were ordered at the same time. They were used until the new Model P-3E lamp was developed and introduced in Butte in May, 1942. The advantage of the P-3E is that it weighs less and has a twenty per cent greater light capacity.

The Butte mines today have 7,550 Model P-3E lamps in use. These are Edison lamps manufactured by the Edison Storage Battery Company of West Orange, New Jersey, and are sold and serviced by the Mine Safety Appliances Company. No Butte lamps are serviced in Pittsburgh since the Butte Mines Electric Shop has every facility for taking care of the local lamps. One hundred twenty-five lamps are kept for emergency use only at the Tramway Rescue Station.

We felt that you might like to know that Butte copper, mined by Butte miners, often returns to them in the form of copper cable used in the lamps and cables. The lamp cord is rubber covered copper cable. Butte copper is also to be found in other parts of the lamp.

The average life of a lamp cord is about two years. When additional cable is required, the Purchasing Department for the Butte mines files an order at Pittsburgh and these cables are sent out to the Anaconda warehouse in Butte. As readers of Copper Commando are aware, there is a lamp house at each mine where the lamps are charged. They are serviced at the Butte Mines Electric Shop. So important is the work of keeping the lamps and cables and batteries in tip-top condition that the Mine Safety Appliances Company keeps a resident representative in Butte. He is H. H. (Mac) McMillen, who came to Butte about thirteen years ago and who is well known to most of the miners on the Butte hill. He keeps in regular touch with the lamp house men and instructs them in the proper care of equipment. We show him in these pages paying a visit to Dan Crowley, foreman of the Tramway Rescue Station. In that picture you may see some of the one hundred twenty-five lamps which are kept for emergency use only. The policy of keeping these lamps in readiness has paid dividends in human lives in communities outside Butte where lamp equipment has not been available.

Old-time miners, who can recall the days of the candle and the carbide lamp which followed it, who can remember without difficulty the old days of the horse-whim and the underground mule, sometimes marvel at the great strides that have been made in mine safety over the years. The Mine Safety organization in Pittsburgh, however, is not satisfied to rest on its laurels—the company maintains a large research laboratory which is constantly improving present equipment and planning for the future.

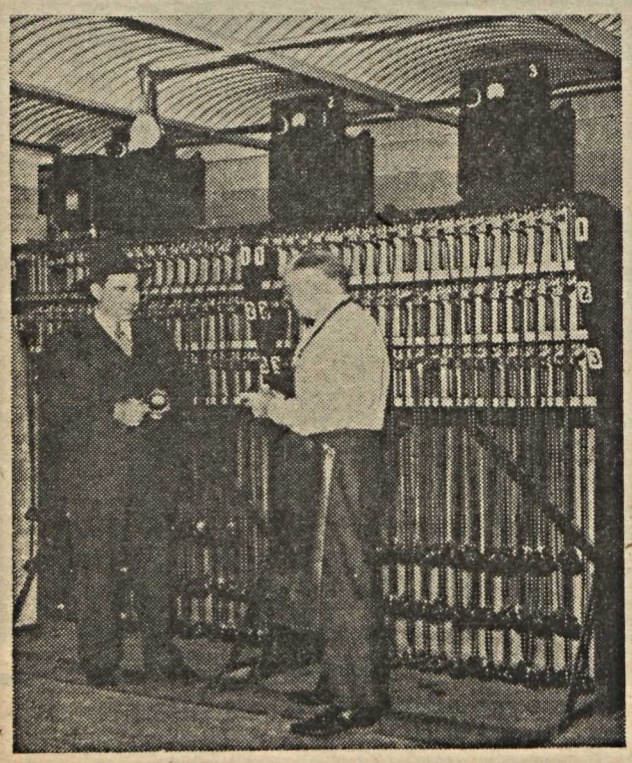
Here, then, is the picture story of the lamps. We hope every miner who works with them will be as interested in seeing them as we were.

●

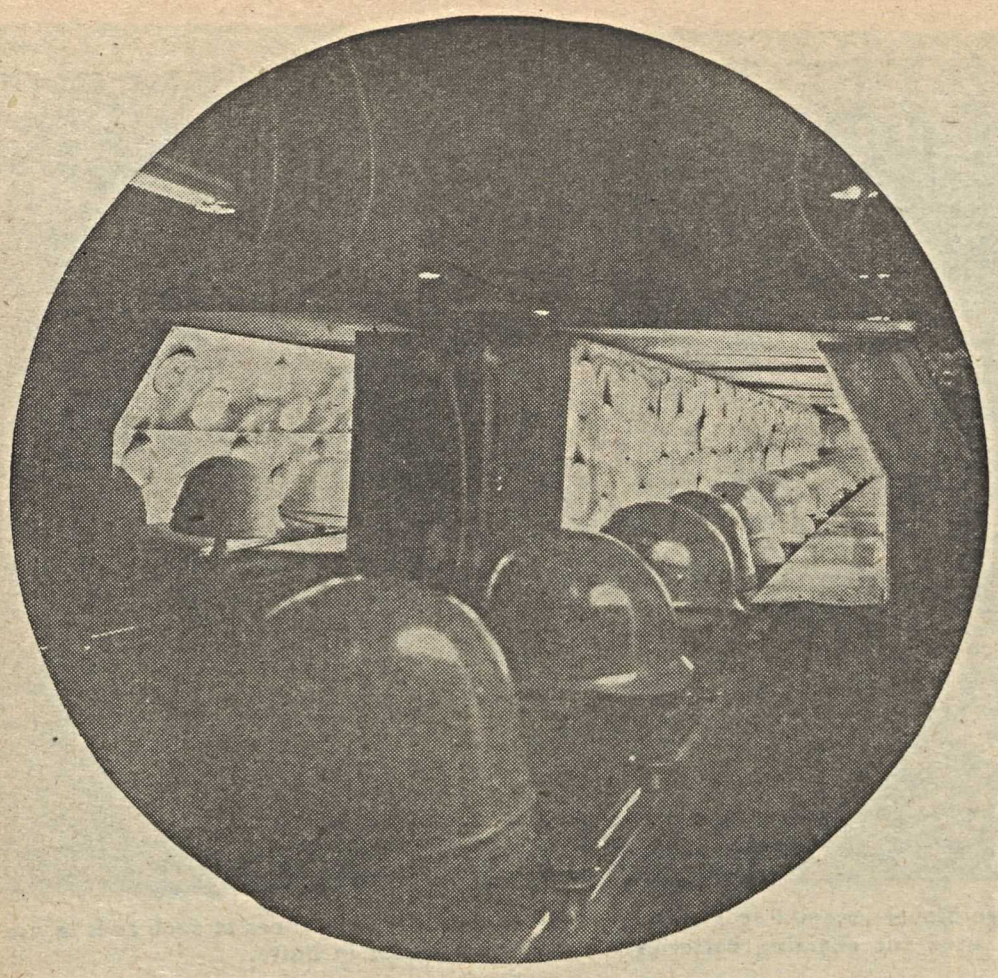
**Here we find George Stover assembling a rheostat which will be used for charging batteries for mines. This is a rheostat such as is in use at the lamp houses in Butte.**

**Next stop: The Butte Mines Electric Shop. Here Agnes Monahan is shown putting terminals on the cable. These cables were ordered for Butte and are now in underground use in the mines.**

**H. H. (Mac) McMillen, western representative for Mine Safety Appliances Company, talks about lamps with Dan Crowley, foreman of the Tramway Rescue Station in Butte. Shown in this picture are some of the one hundred twenty-five lamps which are maintained by the Anaconda Company for emergency use only.**



**Here is the assembled job. Margaret Geragi makes the final tests on the lamps before they are shipped out for use in the mines. Each lamp undergoes a rigid inspection.**



G I Joe's helmet liner enters the drying tunnel. This article tells you all about it.

# *For the* ARMED FORCES

**Hard hats aren't in use in mines alone. They are being supplied by the millions to be used as protective headgear for our fighting men. The hat the Butte miner wears and the helmet the fighting man wears are made out of the same stuff.**

THE hard hat you wear as a miner is practically the same as the liner for the steel helmet worn by our millions of boys moving in to mop up Japan. That fact struck your editors right between the eyes.

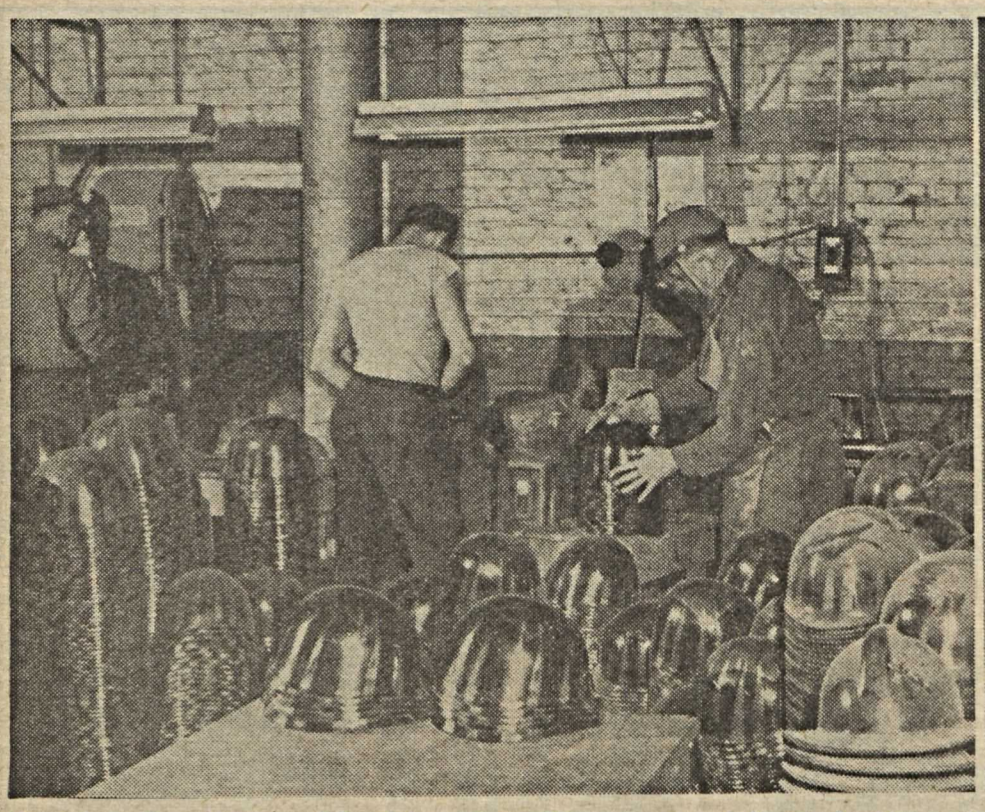
The miner's hard hat shell is made in the same department as the soldier's hard hat, and on these three pages we want to show you how the job is done.

The soldier's protective helmet liner you have often seen in war pictures. It is slightly thinner than the Butte miner's hard hat because over it fits the three-pound steel helmet worn in actual combat. The protective helmet liner is used to cushion the head against shock.

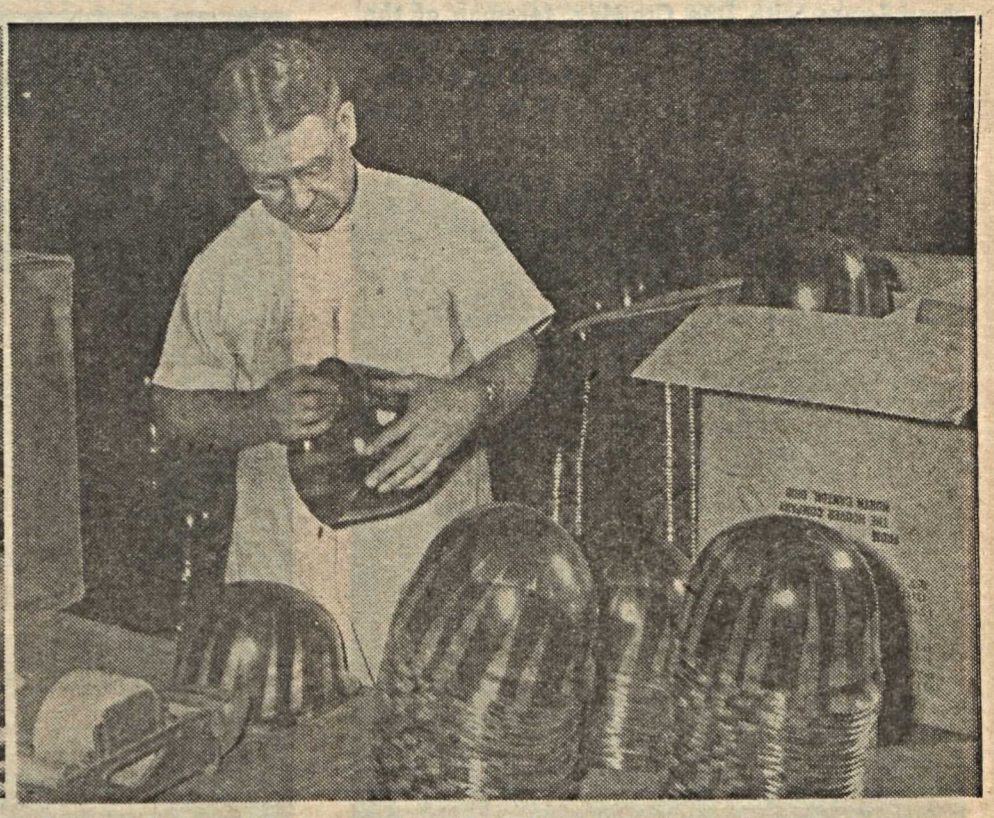
Although we don't show you the three-pound steel helmet in these pictures, you all know what it looks like. And you hunters will get a kick out of this: The steel helmet worn by our soldiers will stand a bullet from a .45 calibre revolver at seven feet without penetration. It has been estimated that, had these steel helmets been used in the last war, our casualties as a result of head wounds would have been fifteen per cent less.

These military helmet liners are being turned out by the Mine Safety Appliances Company at one of their plants in Pittsburgh and they are batting them out at a tremendous rate.

The first step is to mold the laminated plastic shell and this is done in the same plant and on the same type of press that the Butte hard hats are molded. The hats are trimmed and buffed in the same way the Butte hats are; they are then inspected and shipped along to the assembly plant. Here is an assembly line operation. The hats move on a conveyor belt, and girls lift off the shells and insert the lining in practically the same way the linings for Butte hard hats are inserted. They move along this endless conveyor belt to a spraying machine where a camouflage spray is squirted on them and then through an oven where the paint is dried and hardened. From there they move to the battlefronts.



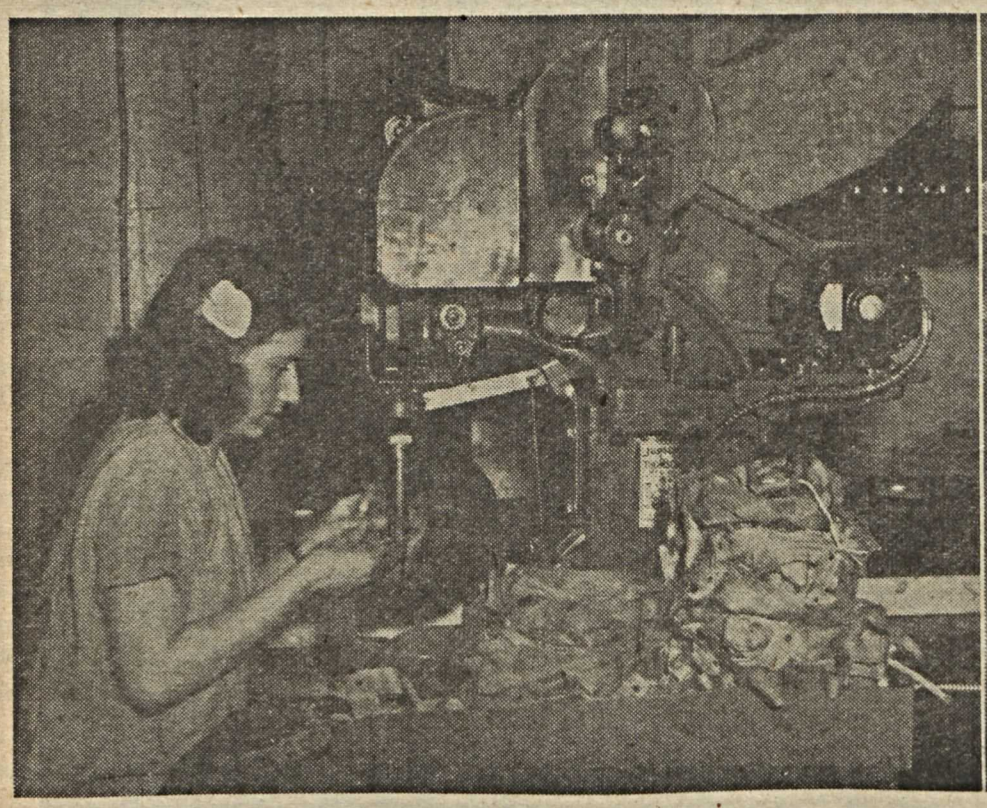
Hard hats for miners and hard hats for soldiers undergo the same treatment. Here at the left



Paul Krachala, Alex Copeland and Tom Flynn put the finishing touches on the shells. At the right Jim Mann inspects and packs the helmet liners for transfer to the assembly plant.

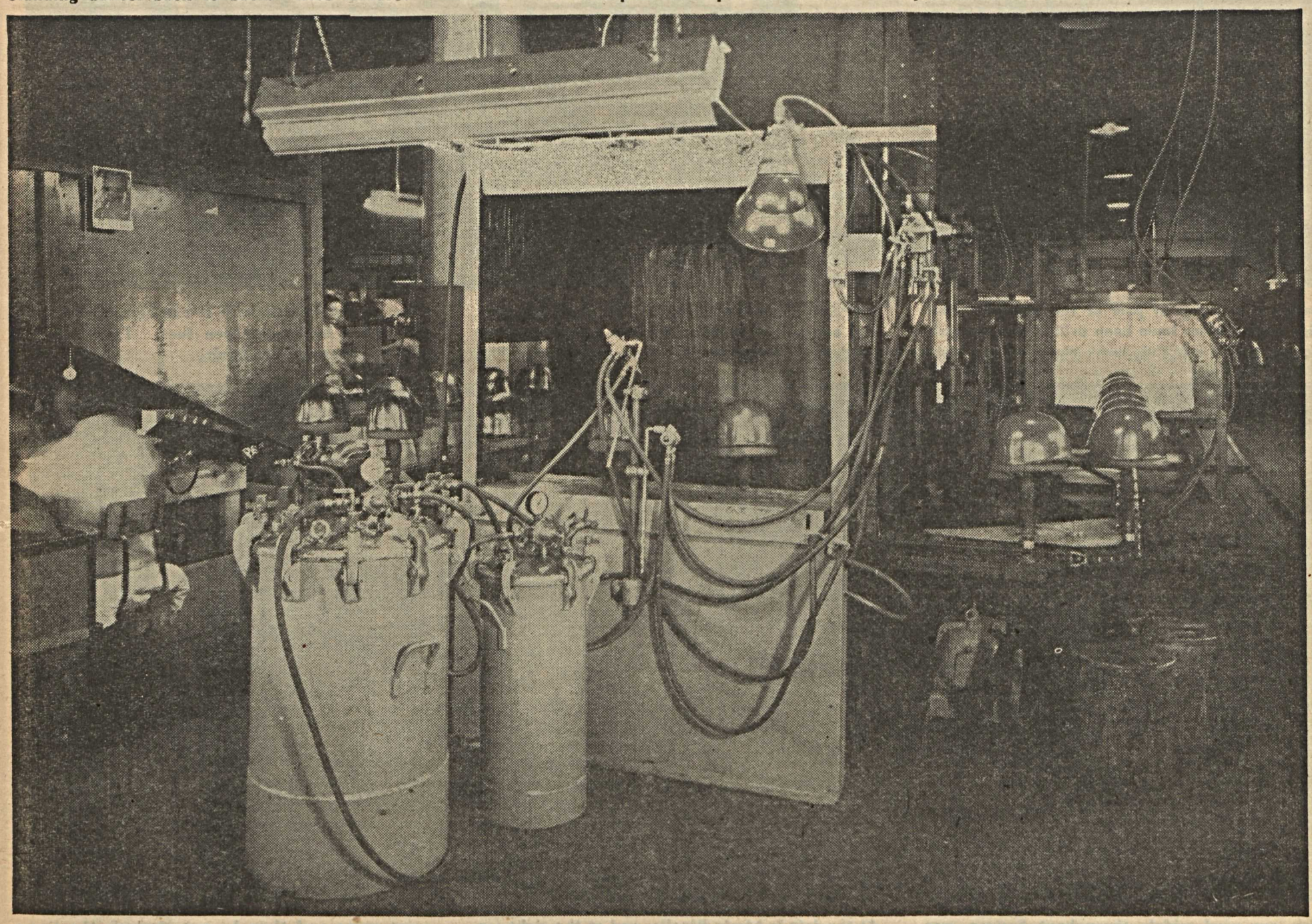
Using an actual three-pound steel military helmet Ann Kieffer checks every shell for fit. Over at the right, Annette Gliatto drills the gromet holes. Note stack of shells at right which will soon start down the assembly line. The drilled shells are placed on an endless conveyor belt and will now move down the line to the girls who insert the linings. The girls work at lightning speed cushioning headgear for our boys.

Here's a close-up of part of the assembly line. The gromet holes have been drilled and the girls pick up the hats as they move along the conveyor belt and insert the linings. This plant has special equipment installed for the manufacture of products required by the Army and Navy. The three-pound steel helmet it carries will stand a .45-calibre bullet at seven feet. Take a look at the helmet on page twelve.



Girls are used widely throughout Eastern war production plants. Here we find two of them inserting the linings in the military helmet liners. At the left is Marie Rinella, and at the right we find Agnes Traynor. These helmet liners will now move to rotating pedestals, undergo a quick paint spray and then be put through the line drying tunnel, where the paint is dried and hardened under great heat.

The girls shown in the picture above—Rose McFarland and Catherine Mosblack—are actually standing almost back to back. Rose removes from the moving pedestals the finished helmet liners after they have passed through the drying tunnel. Catherine puts the unpainted liners on the pedestals and starts them on their way through the spray into the drying tunnel. This operation is a continuous one.



This is a close-up of the spray and the entrance to the drying tunnel. Look closely and you will see the helmet liners coming one by one on the revolving pedestals into the paint spray. The paint chambers are shown in the foreground and as the liner passes into the paint chamber it gets a quick paint bath and then moves on, as you can see at the right, into the drying tunnel. See the circular picture on page eight.

# People and Places

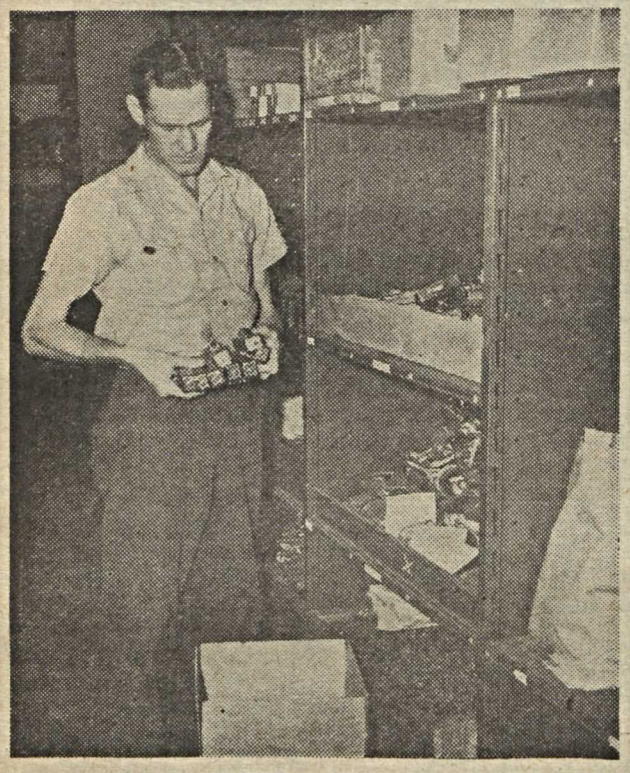
WE enjoyed our trip to Pittsburgh very much. The men of the Mine Safety Appliances Company are mining men from away back, and we got to buzzing around learning some of the history of the organization itself. We think you'd like to read a little about it, too.

The two men behind the Mine Safety Appliances Company were John T. Ryan and George H. Deike. Both of them had been on the

**Librarian Stella Vetter, at right, and assistant Betty Marquis, in one of the Mine Safety libraries.**

staff of the U. S. Bureau of Mines. Mr. Ryan, who died suddenly about two years ago, was in Briceville, Tennessee, in December, 1911, when Mr. Deike joined the Bureau. The Briceville catastrophe which caused the deaths of eighty-four miners and other rescue work following mine explosions started the two young men to thinking. They decided to organize a company devoted to the manufacture of equipment designed to help prevent mine accidents and to increase safety in mine operations. The company is now over thirty years old and it manufactures countless items of safety equipment.

On this page we show you pictures of John T. Ryan, Sr., whose widow came originally from Anaconda (her maiden name was Mary Gavin); Mr. Deike, who served for some years as chairman of the board while Mr. Ryan was president and who has taken over the presidency since the death of Mr. Ryan, Sr., and John T. Ryan, Jr., who is following in his father's footsteps.



**Here we find Jack Nolan filling out an order for battery covers to go to Butte.**

### Service Plus

IN order to speed up service to mining organizations, Mine Safety maintains a special shipping department, and on this page we show two orders being filled for Butte—one for cable and another for battery covers.

One of the things that really hit us between the eyes was the tremendous research library in Pittsburgh. Here we met Miss Stella Vetter and her assistant, Betty Marquis. The library contains practically every piece of literature on mining and safety you can imagine.

Not only are hard hats for Butte manufactured in Pittsburgh and protective helmet liners for our fighting men, but hard hats for coal miners and helmets for firemen as well.

Frank Doyle, supervisor of the hat molding department, showed us the various models. They are all made from the same material.

### Big Town

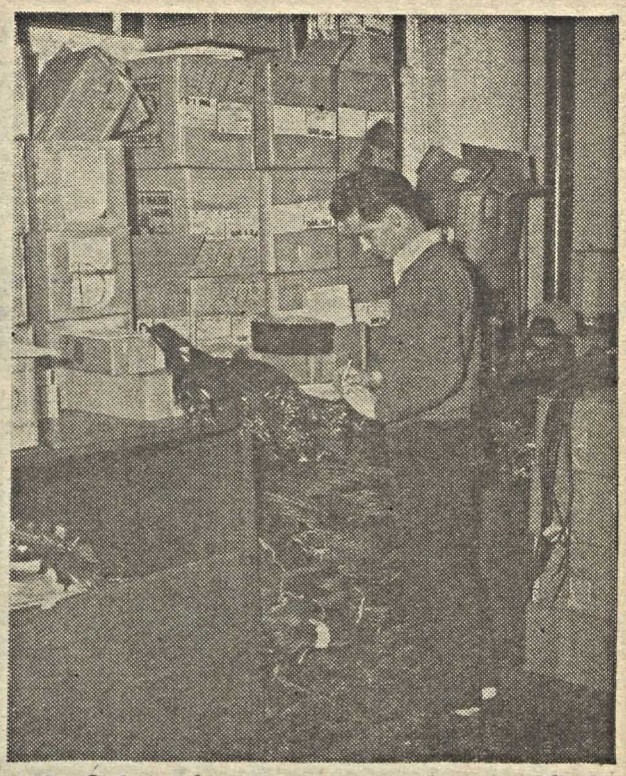
PITTSBURGH, like many other industrial centers in the East, is booming with people. We have visited there a few times in the past—as newspaper people we "covered" one of the disastrous floods against which Pittsburgh is now prepared. Today it has a tremendous population, and at the time we were there it really was going strong.

### MSA People

THE folks at the Mine Safety organization know a lot about Butte, and a great many of those we met had visited Butte at some time. It was interesting to us to hear that, according to the boys in Pittsburgh, who are in a position to know, the Anaconda Company investigates every single development in mine safety. One of the officials there told us that there is no new development in safety equipment that is not studied immediately by the management at Butte. He declared that in his opinion, "Anaconda has always taken advantage of the latest in safety equipment."

### For the Services

AS we have already indicated, the Mine Safety organization today manufactures not only safety equipment for the mining industry, but it is deep in war production. When your editors visited several of the plants, we had an opportunity to see at first hand the tremendous production of first-aid equipment for the battle-fronts.

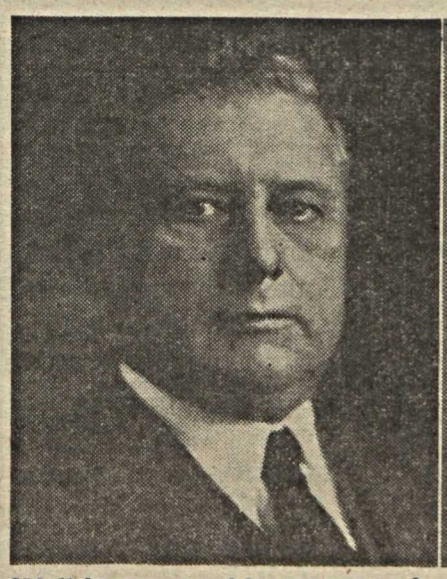


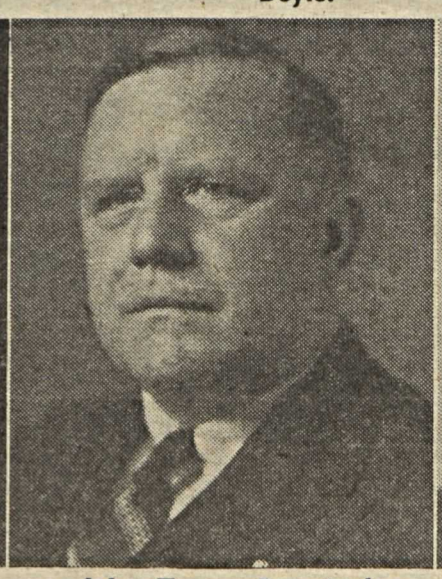
**John Sisk is checking out an order of cable for the Butte mines.**

Women and girls are used to a great extent in these operations, which require great skill and speed. You've probably seen those glass ammonia capsules that people break with their fingers and then inhale. They are used in ordinary life to revive fainting people or to act as a stimulant. These capsules are encased in gauze tied at each end, and the tying operation must be done by hand. One of the gals who was working on the tying operation—the capsules are strung along a long cord—worked so fast in tying the knots at each end and then snipping them with a pair of shears that the human eye simply could not catch it.

We asked her to slow down a little so that we could see how she did it, but she laughingly told us that it wasn't possible.

**Copper Commando editor Bob Newcomb, seated, is shown a Butte hard hat by supervisor Frank Doyle.**





**Well-known to Montana people was John T. Ryan, Sr., beloved co-founder with George H. Deike of Mine Safety Appliances Company. Mr. Ryan is shown at left. In the center is Mr. Deike and at the right is J. T. Ryan, Jr. Mr. Deike is now president and Mr. Ryan, Jr., manager.**

# HARD Hat!

YOU said it, it's a hard hat! It is a hard hat for use in the mines and it is a hard hat on the battle fronts. Here's a War Department photograph of Sgt. John R. Morton of Booneville, Missouri, who is pointing to a bullet hole in his helmet made during the fight on the Metz-Nancy front. The bullet, as you can see, didn't injure him. He is the first living soldier to receive the Distinguished Service Cross in the Sixth Armored Division. He killed twenty-six Germans with a carbine after his half-track was knocked out. Then he killed three more with a tommy gun. Hard hats save lives on the battlefronts and on the production front as well.